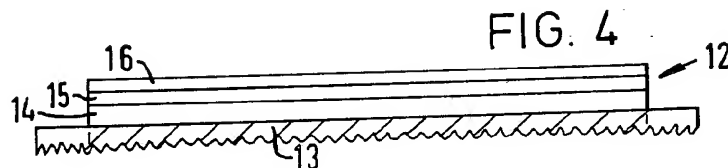
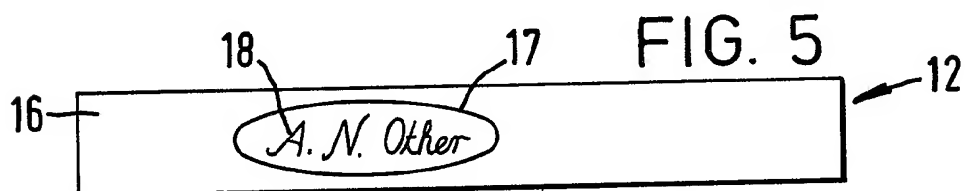
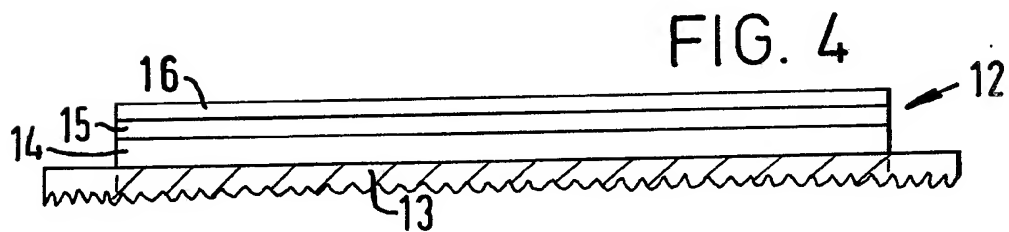
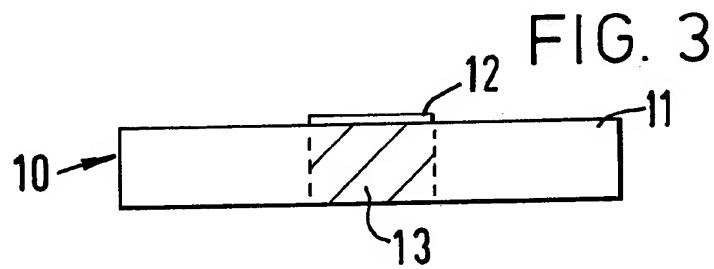
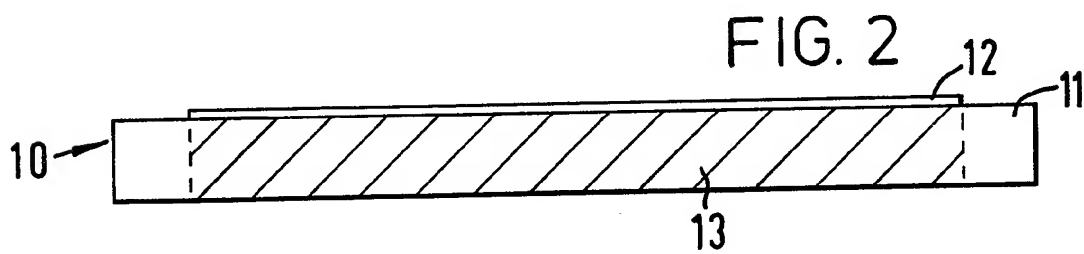
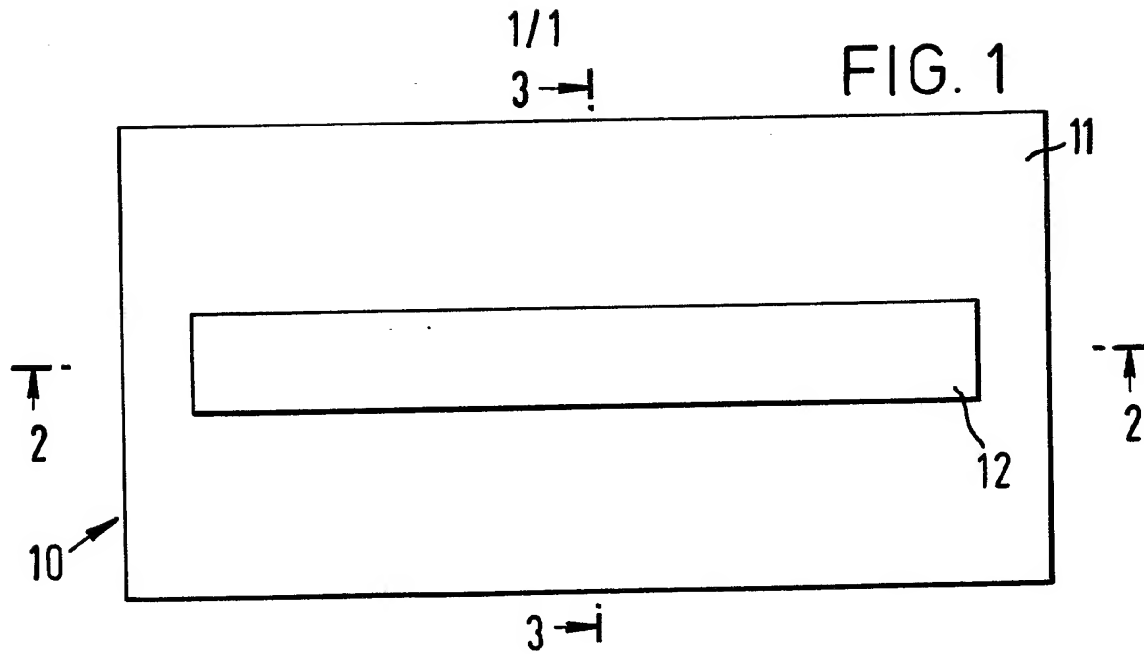


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(54) Security card

(57) A security card comprises an at least locally light-transmitting support and a signature-receiving spark-burning recording member 12 secured to it. The member 12 is made up of a paper base 14, a coloured light-transmitting lacquer 15 and a top coat of vacuum-deposited metal 16. Preferably the metal 16 is aluminium. A signature with a electrically-conductive pen connected to a current source and earthed through the metal 16 appears as a coloured image in reflected light where the metal has been removed by vaporisation. With transmitted light the signature appears as a lighter image than the surrounding metal 16. If the signature is surrounded, after its completion, by a continuous line where the metal 16 has been removed, earthing of the remaining metal adjacent the signature by a forger will be impeded.





## SPECIFICATION

## Security card

- 5 This invention relates to a security card.

There are various types of security cards in use today, for instance cheque cards, account cards, agency and cash cards. Invariably, they consist of a plastic support embossed with a code number and personal details and carrying a thin strip of paper adhesively secured thereto for bearing the signature of the card owner.

A major problem with such cards is the difficulty involved in preventing forgery, and it is therefore an object of the present invention to provide a security card which is much more difficult, if not impossible, to forge.

The present invention provides a security card, which comprises a support having a light-transmitting zone, and an electrically-conductive coated paper over laying and secured to the zone for receiving an electrically-conductive writing implement, the coated paper comprising a light-transmitting paper base, a light-transmitting coloured lacquer sub-coat, and a vacuum metallised coating in that order outwardly from the zone, the vacuum metallised coating being capable of being selectively removed by the application and relative movement thereto of the writing implement whereby an image of the writing is produced that can be seen by the reflectance of light from the coloured lacquer sub-coat and by the transmission of light through the zone, paper base, and coloured lacquered sub-coat.

The support is generally made from a plastic material and preferably is flat and rigid and can take embossing and printing. The light-transmitting zone of the support may be translucent or preferably transparent. The rest of the support is either opaque, i.e. substantially impermeable to light, or light-transmitting. For manufacturing reasons however, it is preferred that both the zone and the rest of the support are light-transmitting.

The paper base preferably is a low grammage paper, for example one with a grammage less than 50 g/m<sup>2</sup>, and is such that it will accept a lacquer without excessive absorption. Suitable examples include kraft- and glassine-type papers having a smooth surface which may be achieved by clay-coating or supercalendering the paper. The paper base is secured to the light-transmitting zone of the support by conventional means, such as with the use of light-transmitting adhesive.

The grammage of the lacquer sub-coat is desirably of the order of 2 to 3 g/m<sup>2</sup> as this appears to provide for the best optical properties in the resulting security card, i.e. a clear and distinct image of the writing whether it is seen by reflectance or transmission of light from or through the sub-coat. According to particular requirements however, the grammage may be lower or higher than this range but should not, of course, be so low or so high as to result in a security card wherein the image of the writing can only be seen by reflectance or transmission of light to the substantial exclusive of the other. In practice,

the optimum grammage can readily be determined, and applied to the paper base by a conventional lacquering machine.

The lacquer itself may be of any colour including black and white although dark colours are very much preferred to light colours.

The metal coating is preferably matt and may comprise any metal that is capable of being applied to the lacquer subcoat by vacuum deposition and that is capable of being selectively removed in the manner set forth above. Preferably the metal is aluminium which may be used in an amount of about 2 ohms per square unit area.

The writing implement for use with the present invention is advantageously of the type described in U.K. Patent Application 48286/77 (serial No. 2014089), and, as used herein, the word "writing" includes any making of a line, straight or curvilinear, by hand and, in particular the making of a signature. Such a line may be continuous or even discontinuous, as described in the aforementioned application.

In order that the invention may be better understood, an embodiment of it will now be described by way of example with reference to the accompanying drawings, in which:-

*Figure 1* is a plan view of a security card in accordance with the present invention;

*Figure 2* is a sectional view of the card taken along the line 2-2 *Figure 1*,

*Figure 3* is a sectional view of the card taken along the line 3-3 of *Figure 1*,

*Figure 4* is an enlarged view of the coated paper as shown in *Figure 2*, and

*Figure 5* is a plan view of the coated paper showing a signature.

Referring to *Figures 1, 2 and 3*, there is shown a security card 10 comprising a plastic support 11 and an electrically conductive coated paper 12. The support 11 is wholly transparent and has a zone 13 (shown in hatched lines) to which the coated paper 12 is secured in overlaying relation.

The coated paper 12, which is shown in more detail in *Figure 4*, consists essentially of three parts. Closest to the zone 13 and adhesively secured thereto, is a light transmitting glassine paper base 14. Then, superimposed upon the paper base 14 is a sub-coat 15 of a black lacquer having a grammage of 2 g/m<sup>2</sup> and which is also light transmitting. Finally, the furthest part of coated paper 12 from zone 13 is an aluminium coating 16 applied to the subcoat 15 in an amount of 2 ohms per square unit area.

In using the present invention the aluminium coating 16 is connected to earth and an electrically-conductive writing implement (not shown but which may be of the type described in U.K. Patent Application 48286/77) is taken in hand in the manner of a pen or pencil and used to write a signature on the aluminium coating 16. As the writing is effected, an electrical circuit is established which causes the aluminium coating 16 to be removed by vaporization at the point of contact between the writing implement and the coating 16. The removal of the coating 16 exposes the black sub-coat 15 in sharp contrast to the lighter colour of aluminium, and hence, if the

bard 10 is placed upon a dark surface, a black signature is clearly seen against the aluminium background. In addition, and as a security check, a signature of a lighter colour than the aluminium background is equally clearly seen if the card 10 is held up to a light source.

As a further precaution against forgery, a continuous perimeter 17 can be drawn around a signature 18 with an electrically conductive writing implement, as shown in Figure 5. This breaks the electrical circuit between the area enclosed by the perimeter 17 and the connection to earth of the aluminium coating 16 outside the perimeter 17. Thus, any attempt to forge the signature 18 will not succeed unless the connection to earth is made within the area defined by the perimeter 17.

To facilitate the writing of a signature, an apparatus of the type disclosed in U.K. Patent Application 48286/77 may be used.

It should be appreciated from the foregoing that a signature or other writing, would only be deemed valid with the present security card if it could be seen both by reflectance and transmission of light. In this way, any attempt at a forgery involving the addition of ink-writing to the signature could readily be detected since the addition would not be seen by transmitted light but only by reflected light. Moreover, the selective removal of the metal coating in effecting the writing is extremely difficult to achieve without using an electrically-conductive writing implement, and any attempt to scratch away selected areas of the coating would signal fraudulent alteration. Further, any attempt to modify the signature by re-depositing the appropriate metal therein is virtually impossible without also re-depositing metal on top of the surrounding of the coating which defines the writing. Thus, the present invention provides a security card which has several advantages over the known such cards and in fact is must less, if at all, susceptible of being forged.

#### CLAIMS

1. A security card, which comprises a support having a light-transmitting zone, and an electrically-conductive coated paper over laying and secured to the zone for receiving an electrically-conductive writing implement, the coated paper comprising a light-transmitting paper base, a light-transmitting colour lacquer sub-coat, and a vacuum metallised coating in that order outwardly from the zone, the vacuum metallised coating being capable of being selectively removed by the application and relative movement thereto of the writing implement whereby an image of the writing is produced that can be seen by the reflectance of light from the colour lacquer sub-coat and by the transmission of light through the zone, paper base, and colour lacquered sub-coat.

2. A security card according to claim 1, wherein the support is made from a plastic material.

3. A security card according to either of claims 1 or 2 wherein the support is flat and rigid and can take embossing and printing.

4. A security card according to any one of the

preceding claims, wherein both the zone and the rest of the support are light-transmitting.

5. A security card according to any one of the preceding claims wherein the paper base has a grammage of less than 50 g/m<sup>2</sup>.

6. A security card according to any one of the preceding claims, wherein the paper base is a kraft or glassine paper.

7. A security card according to any one of the preceding claims, wherein the paper base is secured to the light-transmitting zone with a light-transmitting adhesive.

8. A security card according to any one of the preceding claims, wherein the grammage of the lacquer sub-coat is from 2 to 3 g/m<sup>2</sup>.

9. A security card according to any one of the preceding claims, wherein a dark colour lacquer is used.

10. A security card according to any one of the preceding claims, wherein the metallised coating is an aluminium coating.

11. A security card according to claim 10, wherein the amount of aluminium used in the coating is 2 ohms per square unit area.

12. A security card substantially as described herein before with reference to the example.

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